查询RT9261B供应商

5Bit VID Reference Generator

General Description

The RT9401A/B are digital to analog converters which generate a reference voltage for Intel VR10.x/AMD K8 5-bit VID code respectively. The parts are proposed to pair with a series of RichTek's general purpose PWM controllers dedicated for the desktop microprocessor core power voltage regulation. The reference voltage is within 1% high accuracy. These parts use a small footprint package of SOT-23-8.

Ordering Information

RT9401A/B □ □

- Package Type
  V8 : SOT-23-8
- Operating Temperature Range
  C : Commercial Standard
  P : Pb Free with Commercial Standard
- K8
- VR10.X

Note :

RichTek Pb-free products are :

–RoHS compliant and compatible with the current requirements of IPC/JEDEC J-STD-020.

–Suitable for use in SnPb or Pb-free soldering processes.

–100%matte tin (Sn) plating.

Marking Information

For marking information, contact our sales representative directly or through a RichTek distributor located in your area, otherwise visit our website for detail.

Features

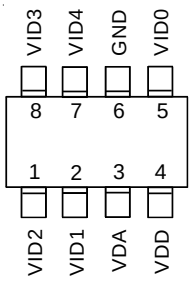
- **RT9401A Support 5bit DAC Voltage Conforming to Intel VRD10.x VID Table**
- **RT9401B Support 5bit DAC Voltage Conforming to AMD K8 VID Table**
- **1% High Accuracy of V_{REF}**
- **Small Footprint Package of SOT-23-8**
- **RoHS Compliant and 100% Lead (Pb)-Free**

Applications

- Desktop/Motherboard Microprocessor Core Power Regulation
- High Accuracy and Programmable Voltage Power Regulation

Pin Configurations

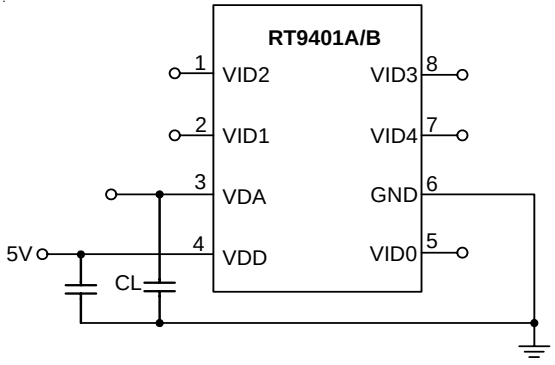
(TOP VIEW)



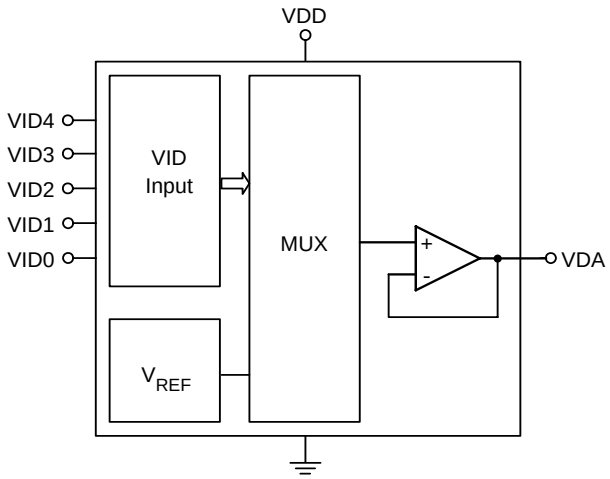
SOT-23-8

Note : There is no pin1 indicator on top mark for SOT-23-8 type, and pin 1 will be lower left pin when reading top mark from left to right.

Typical Application Circuit



Function Block Diagram



Functional Pin Description

Pin Number	Pin Name	Pin Function
1	VID2	DAC Voltage Identification Inputs
2	VID1	DAC Voltage Identification Inputs
3	VDA	Digital - to - Analog Voltage Output
4	VDD	Power Input Pin
5	VID0	DAC Voltage Identification Inputs
6	GND	Ground
7	VID4	DAC Voltage Identification Inputs
8	VID3	DAC Voltage Identification Inputs

Absolute Maximum Ratings (Note 1)

- Supply Input Voltage, V_{DD} ---------- 7V
- Power Dissipation, P_D @ T_A = 25°C
  SOT-23-8 ---------- 0.4W
- Package Thermal Resistance (Note 4)
  SOT-23-8, θ_{JA} ---------- 250°C/W
- Lead Temperature (Soldering, 10 sec.) ---------- 260°C
- Storage Temperature Range ---------- –65°C to 150°C
- ESD Susceptibility (Note 2)
  HBM (Human Body Mode) ---------- 2kV
  MM (Machine Mode) ---------- 200V

Recommended Operating Conditions (Note 3)

- Supply Input Voltage, V_{DD} ---------- 5V ±10%
- Junction Temperature Range ---------- –40°C to 125°C

Electrical Characteristics

(V_{DD} = 5V, T_A = 25°C, unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
V_{DD} Supply Current						
Nominal Supply Current	I_{DD}	VDA open	--	2	5	mA
Reference & DAC						
Output Voltage Program	See Table 1 & Table 2					
DAC Output Voltage Accuracy		VDA ≥ 1V	-1	--	+1	%
		VDA < 1V	-10	--	+10	mV
VID(4:0) Input Low			--	0.65	--	V
VID(4:0) Input High			1.05	--	--	V
VID[4:0] Internal Pull-High Current Source Capability			18	--	--	μA
VID[4:0] Internal Pull-High Voltage		When select AMD CPU	2.2	2.4	2.5	V
		When select Intel CPU	1	1.1	1.2	V
Output Buffer						
DC Gain		Capacitor Load Only	--	70	--	dB
Bandwidth	GBW	CL=1nF	--	1.64	--	MHz
Slew Rate	SR	CL=0.1uF	--	9.5	--	mV/μs
Impedance	R_{OUT}		60	--	110	Ω

Note 1. Stresses listed as the above "Absolute Maximum Ratings" may cause permanent damage to the device. These are for stress ratings. Functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may remain possibility to affect device reliability.

Note 2. Devices are ESD sensitive. Handling precaution recommended.

Note 3. The device is not guaranteed to function outside its operating conditions.

Note 4. θ_{JA} is measured in the natural convection at T_A = 25°C on a low effective thermal conductivity test board of JEDEC 51-3 thermal measurement standard.

Table 1. Output Voltage Program (VR 10)

Pin Name					Nominal Output Voltage VDA
VID4	VID3	VID2	VID1	VID0	
1	1	1	1	1	OFF
0	1	0	0	1	0.850V
0	1	0	0	0	0.875V
0	0	1	1	1	0.900V
0	0	1	1	0	0.925V
0	0	1	0	1	0.950V
0	0	1	0	0	0.975V
0	0	0	1	1	1.000V
0	0	0	1	0	1.025V
0	0	0	0	1	1.050V
0	0	0	0	0	1.075V
1	1	1	1	0	1.100V
1	1	1	0	1	1.125V
1	1	1	0	0	1.150V
1	1	0	1	1	1.175V
1	1	0	1	0	1.200V
1	1	0	0	1	1.225V
1	1	0	0	0	1.250V
1	0	1	1	1	1.275V
1	0	1	1	0	1.300V
1	0	1	0	1	1.325V
1	0	1	0	0	1.350V
1	0	0	1	1	1.375V
1	0	0	1	0	1.400V
1	0	0	0	1	1.425V
1	0	0	0	0	1.450V
0	1	1	1	1	1.475V
0	1	1	1	0	1.500V
0	1	1	0	1	1.525V
0	1	1	0	0	1.550V
0	1	0	1	1	1.575V
0	1	0	1	0	1.600V

Note: (1) 0 : Connected to GND
(2) 1 : Open

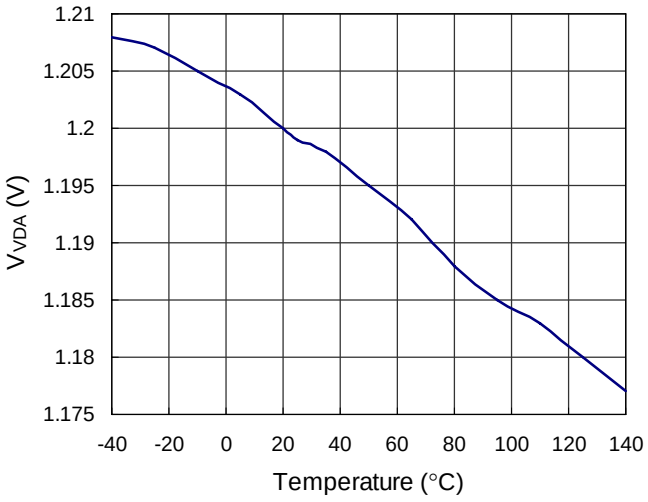
Table 2. Output Voltage Program (K8)

VID4	VID3	VID2	VID1	VID0	Nominal Output Voltage **VDA**
0	0	0	0	0	1.550
0	0	0	0	1	1.525
0	0	0	1	0	1.500
0	0	0	1	1	1.475
0	0	1	0	0	1.450
0	0	1	0	1	1.425
0	0	1	1	0	1.400
0	0	1	1	1	1.375
0	1	0	0	0	1.350
0	1	0	0	1	1.325
0	1	0	1	0	1.200
0	1	0	1	1	1.275
0	1	1	0	0	1.250
0	1	1	0	1	1.225
0	1	1	1	0	1.200
0	1	1	1	1	1.175
1	0	0	0	0	1.150
1	0	0	0	1	1.125
1	0	0	1	0	1.100
1	0	0	1	1	1.075
1	0	1	0	0	1.050
1	0	1	0	1	1.025
1	0	1	1	0	1.000
1	0	1	1	1	0.975
1	1	0	0	0	0.950
1	1	0	0	1	0.925
1	1	0	1	0	0.900
1	1	0	1	1	0.875
1	1	1	0	0	0.850
1	1	1	0	1	0.825
1	1	1	1	0	0.800
1	1	1	1	1	Shutdown

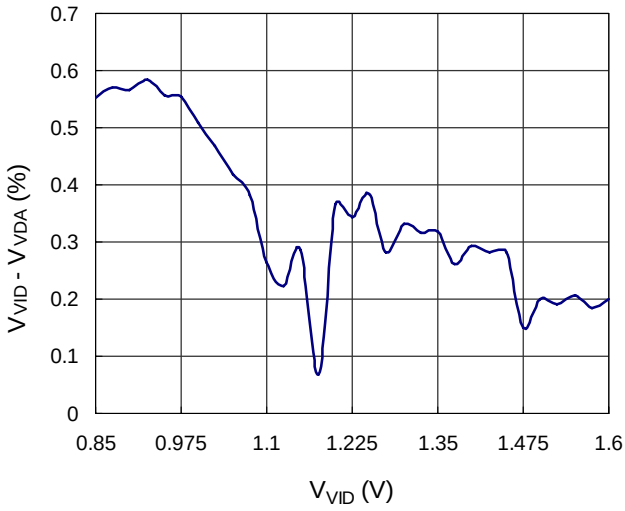
Note: (1) 0 : Connected to GND
(2) 1 : Open

Typical Operating Characteristics

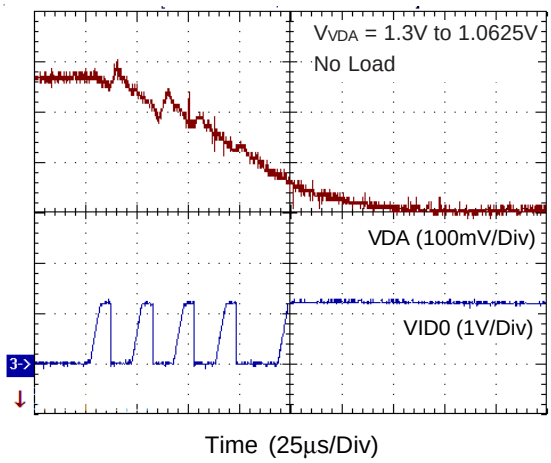
V_{VDA} vs. Temperature



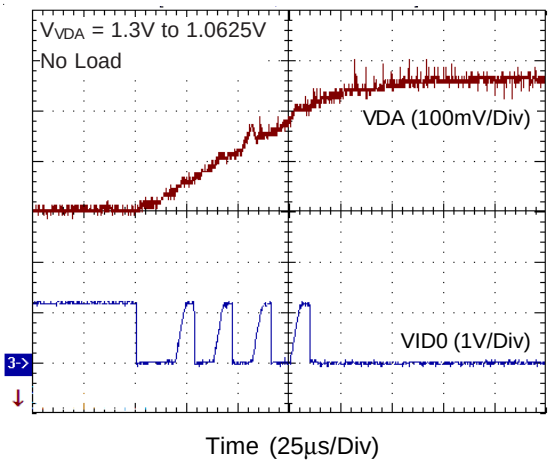
Error Between V_{VID} & V_{VDA}



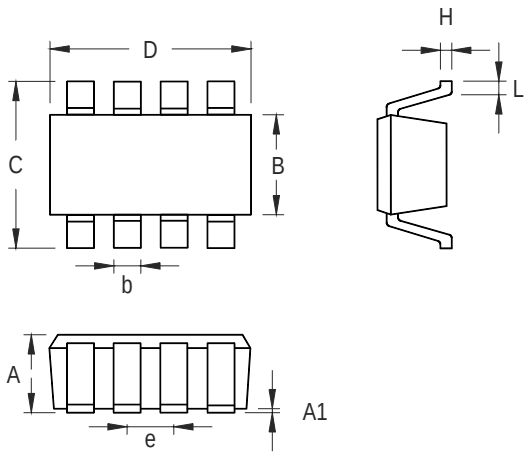
VID on the Fly Falling



VID on the Fly Rising



Outline Dimension



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.000	1.450	0.039	0.057
A1	0.000	0.150	0.000	0.006
B	1.500	1.700	0.059	0.067
b	0.220	0.500	0.009	0.020
C	2.600	3.000	0.102	0.118
D	2.800	3.000	0.110	0.118
e	0.585	0.715	0.023	0.028
H	0.100	0.220	0.004	0.009
L	0.300	0.600	0.012	0.024

SOT-23-8 Surface Mount Package

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